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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/028,690	12/28/2001	Stephen V. Lunzman	8350.0687-00	4786

7590 03/09/2004
Finnegan, Henderson, Farabow,
Garrett & Dunner, L.L.P.
1300 I Street, N.W.
Washington, DC 20005-3315

EXAMINER

LOPEZ, FRANK D

ART UNIT	PAPER NUMBER
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3745

DATE MAILED: 03/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/028,690

Applicant(s)

LUNZMAN ET AL.

Examiner

F. Daniel Lopez

Art Unit

3745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Response to Amendment

Applicant's arguments filed December 17, 2003, have been fully considered but they are not deemed to be persuasive.

Applicant argues that Aardema et al does not disclose a method of estimating a flow rate through a valve based on a pressure drop and displacement of the valve and computing a command signal to actuate the valve based on a desired flow rate and the estimated flow rate. Applicant is mistaken. The controller of Aardema et al clearly controls the flow either in an open loop or in a closed loop, based on one of a number of factors, including flow (column 6 line 60-64). Closed loop control means that the flow is controlled based on a comparison of desired and actual flow rates. The actual flow rate can be either measured directly or indirectly (estimated). A well known method indirectly measuring the flow rate is based on the size of the restriction and the pressure drop. Since the control valve is essentially a variable restriction and since the size of the restriction is related to the displacement of the valve; the flow rate is well known to be based on the pressure drop across and the displacement of the valve. Although not explicitly stated in Aardema et al, one of ordinary skill would understand that this is all either implicitly stated, based on the discussion of closed loop control of the flow, or obvious based on the same discussion.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 102

Claims 1-5, 9-14, 16 and 18-20 are rejected under 35 U.S.C. § 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Aardema et al (either one). Aardema et al discloses a control system including a closed loop control over the flow (e.g. column 6 line 60-64). Since a closed loop feedback generates a command signal based on a difference between an actual value and a desired value, and since a flow through a control valve is dependent on a pressure difference across and opening of the control valve; one of ordinary skill in the hydraulic control system art would recognize that the closed loop control over the flow would generate an estimated

Art Unit: 3745

flow based on the pressure difference across and opening of the control valve, and the command signal based on the estimated flow and an actual flow, generated from a desired flow rate. If not, it would have been obvious at the time the invention was made to one having ordinary skill in the art to do so.

Claim Rejections - 35 USC § 103

Claims 6- 8, 15 and 17 are rejected under 35 U.S.C. § 103 as being unpatentable over Aardema et al (either one). Aardema et al discloses a system for controlling a flow through a valve and method of operating comprising pressure sensors (e.g. 305) monitoring a pressure drop (from 330) across the valve and a flow controller configured to determine a command signal (from 340) based on a desired flow rate (from 310) and estimated flow rate, based on the pressure drop and displacement of the valve (see discussion above); but does not disclose that pressure signals from the pressure sensors are subjected to a noise filter; or that the displacement of the valve is either measured by a valve position sensor or estimated based on a commands signal.

Official notice is taken that it is well known to use a noise filter, to filter out higher frequency noise from the pressure signals. It would have been obvious at the time the invention was made to one having ordinary skill in the art to use a noise filter, to filter out higher frequency noise from the pressure signals of Aardema et al.

Official notice is taken that it is well known to determine a displacement of a valve by either measuring using a valve position sensor or estimating based on a previous command signal. It would have been obvious at the time the invention was made to one having ordinary skill in the art to determine a displacement of the valve of Aardema et al by either measuring using a valve position sensor or estimated based on a previous command signal.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Art Unit: 3745

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dan Lopez whose telephone number is (703) 308-0008. The examiner can normally be reached on Monday-Thursday from 6:30 AM -4:00 PM. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Look, can be reached on (703) 308-1044. The fax number for this group is (703) 872-9306. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0861.



F. Daniel Lopez
Primary Examiner
Art Unit 3745
March 05, 2004